MEETING/CONFERENCE CALL MEMO

Date: February 23, 2000

Place: LA DWP Offices, Los Angeles

Attendees: Bruce Moore, LA DWP
Krishna Nand, Parsons ES
Paul Tranquill, Parsons ES
Rand Crafts, IPSC
Lynn Banks, IPSC
Blaine Ipson, IPSC
Brook Pace, IPSC

Purpose: The meeting was held to review the status of activities regarding the proposed improvements to the Intermountain Power Service Corporation (IPSC) generating station near Delta, Utah. IPSC personnel participated via telephone.

Discussion:

During the previous meeting the following action items were established:

1. IPSC will obtain US EPA Region VIII contact for the Deseret Power Plant and provide this information to Parsons ES.
2. Parsons ES will contact the US EPA Region VIII regarding the permitting for the Deseret Power Plant.
3. Parsons ES will contact B&W regarding the applicability and performance of the new Low NOx burners.
4. Parsons ES will contact Reliant Energy in Houston, Texas regarding the performance of the new Low NOx burners.
5. Parsons ES will continue to investigate SNCR and SCR control technology options.
6. Parsons ES will continue to investigate the applicability of NSR associated with capital cost production increase but without an emissions increase.
7. Parsons ES will contact B&W regarding the applicability and performance of the new Low NOx burners.
8. Parsons ES will contact Reliant Energy in Houston, Texas regarding the performance of the new Low NOx burners.
9. Parsons ES will continue to investigate SNCR and SCR control technology options.
10. Parsons ES will continue to investigate the applicability of NSR associated with capital cost production increase but without an emissions increase.

Shortly after the last meeting, IPSC personnel provided the Region VIII contacts to Parsons ES. Parsons ES contacted Region VIII and obtained electronic

copies of the DG&T Bonanza Power Plant PSD permit, PSD permit fact sheet and comments with responses. Mr. Gary Wopensky of Region VIII indicated that the significance evaluation for the upgrade was not included in the fact sheet and permit. He said that we would need to file a Freedom of Information Request (FOIAR) and then he would forward that information to us. He did indicate that the significance evaluation was based on actual historic emissions and not allowable.

Parsons ES also contacted Tim Blanchard of the Utah Department of Air Quality with regard to the state-issued approval order. Mr. Blanchard also indicated that the Bonanza evaluation was based on actual emissions rather than allowable. The following is a summary of the Bonanza Power Plant permitting issues obtained from the information supplied by Region VIII:

1. The original permit was for two 400 MW units. Unit 1 was constructed beginning in 1981 and became operational in 1985.

2. In 1990, the State confirmed ongoing authorization for Unit 2.

3. In 1994 DG&T wanted to increase heat from 4055 MMBtu/hr to 4381 MMBtu/hr. The state said that is would be a PSD major modification requiring a more comprehensive BACT analysis. DG&T disagreed, but cooperated with DAQ to satisfy all substantive PSD requirements.

4. In January 1998 DG&T requested an Approval Order to reduce NOx and increase CO, PM, SO2, and VOC. The requested NOx reduction was 528 tons/year.

5. In March 1998, the State noted that DG&Ts requested a modification in federally enforceable emission limits that will limit the PTE.

6. In 1980 BACT for NOx was operational practice involving off stoichiometric firing, improved burner furnace design, and flue gas recirculation in order to meet 0.6 lbs/MMBtu.

7. The 1998/1999 state permit was to take advantage of improvements in technology and rotor design. According to the information, this installation would result in a 528 tons per year decrease in NOx. All estimated increases in other pollutants were below the significance levels. The pre-change vs. post change emissions were in "Permittee's Attachment 3".

8. According to the permit, the limits contained therein apply to the current turbine system and for the existing turbine with the addition of the new rotor, DCS, NEW BURNERS, and scrubber trays that were installed in 2000. Since the emissions changes associated with the year 2000 project did not trigger PSD, work could be done in 2000 prior to the issuance of

this permit in 2001.

Parsons ES contacted B&W regarding the applicability and performance of the new Low NOx burners. B&W has received additional orders for these burners. The new burners are very similar to those installed at IPSC. B&W verified the NOx performance of 0.17 lbs/MMBtu at the W. A. Parrish Unit 6 in Houston. In addition to the NOx data, B&W indicated that LOI remained essentially the same while CO increased from 30 to 60 ppmv. The increase in CO is a concern. Parsons ES will determine how the Parrish plant handled this increase. IPSC indicated that the regulations may exempt increases in certain pollutants for pollution control projects. The regulations do allow such discretionary exemptions, however, additional investigation is needed.

Parsons ES has continued evaluation of SNCR and SCR. SNCR will reduce NOx emissions by 40 to 50%. We have yet to find a SCR application on a facility in the United States using low sulfur, high ash western coal. Preliminary information suggests these types of applications exist in Europe. Additional investigation is required.

Parsons ES contacted Mobotec who claims to have a novel NOx control system. Mobotec offers a three stage approach to NOx control. Mobotec offers a three-stage solution to controlling NOx. The first phase if name ROFA for rotating over fire air. In this option, the boiler is modeled and then nozzles are installed to generate rotation and turbulence. This improves combustion reducing CO, LOI and NOx. There is a reported increase in boiler efficiency as well. The claimed NOx reduction for this step is 50% at full load and 69% at low load. Installation of ROFA requires a three-week outage. At this time, the largest installation is on a 150 MW unit.

The second stage is called ROTAMIX, and represents an improved SNCR with rotary mixing of chemicals. Mobotec claims a 50% NOx reduction for ROTAMIX with a 5-ppm ammonia slippage and a 50% reduction in chemical consumption over a standard SNCR. Mobotec also claims ROTAMIX can be installed without a plant shutdown. As with ROFA, Mobotec has no large installations of ROTAMIX.

The third stage is the use of SCR. Mobotec indicated that there would be some difficulty with low sulfur, high ash western coal.

Parsons ES also conducted a further review of NSR and NSPS applicability. Parsons ES concluded that the dense pack installation alone would not trigger NSR. NSPS is triggered by a modification that must be accompanied by a capital expenditure. EPA regulations indicate that an expenditure that exceeds 5% of the asset value is a capital expenditure. IPSC added that a modification for NSPS requires an emissions increase above the current potential to emit as opposed to actual emissions.

It appears that the "synthetic" modification will not work as the State will likely use actual emissions rather than allowable for the historic emission rates. The use of the new Low NOx burners from B&W will provide sufficient NOx reductions to more than offset increases associated with additional fuel combustion. The use of the new Low NOx burners combined with SNCR will provide an emission rate in the range of 0.1 lbs/MMBtu, which is well below the anticipated future NOx limits.

The installation of the dense pack alone will not result in any emissions change. However, normal variations could result in an emissions increase of more than 40 tons/yr of NOx. Parsons ES discuss this situation with the State and develop an approach that demonstrates that emissions variations are normal and not a result of the dense pack installation.

Action Items;

The following action items were developed:

1. Parsons ES will contact B&W and Reliant Energy regarding the CO emissions associated with new Low NOx burners.
2. Parsons ES will contact the Utah DAQ regarding the documentation and information needed to demonstrate no emissions increase from the dense pack installation.
3. Parson ES will prepare a FOIAR to obtain the significance determination for the Bonanza Power Plant.
4. Parsons ES will contact SNCR vendors for additional information.
5. Parsons ES will prepare a draft report covering their evaluations.

The next meeting/conference call will take place on February 28, 2001 at 3:00 PM PST. LA DWP will originate the call.